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Patent
Attorney Docket No.: 85773-229**AMENDMENTS TO THE CLAIMS**

Please find below a complete listing of the claims of the application, including their status as effected by the present amendment:

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1.(original) In an optical network comprising a plurality of sites, a method of carrying out performance equalization of a plurality of channels, wherein each channel travels through the network from one of the sites, called an "add" site for that channel, to another one of the sites, called a "drop" site for that channel, comprising:

- 10 determining a channel-specific figure of merit for each channel;
 determining a site-specific figure of merit for each site that is a drop site for at least one channel; and
 adjusting a transmit power of each channel as a function of the channel-specific figure of merit for that channel and as a function of the site-specific figure of merit for that
15 channel's drop site.

- 2.(original) A method as claimed in claim 1, wherein each channel from among the set of channels either dropped at or travelling through any one site occupies a distinct wavelength of light, wherein determining a site-specific figure of merit for a particular site
20 that is a drop site for at least one channel comprises determining a wavelength-specific figure of merit for each channel dropped at the particular site and evaluating a function of each such wavelength-specific figure of merit.

- 3.(original) A method as claimed in claim 2, wherein said function is an averaging
25 function.

- 4.(original) A method as claimed in claim 2, wherein said function is the arithmetic mean.

- 30 5.(original) A method as claimed in claim 2, further comprising:

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determining, for each site that is a drop site for at least one channel, the maximum and minimum wavelength-specific figures of merit;

wherein determining a site-specific figure of merit for each site that is a drop site for at least one channel is performed only if the difference between the maximum and minimum wavelength-specific figures of merit for at least one site that is a drop site for at least one channel is greater than a threshold.

6.(original) A method as claimed in claim 2, wherein adjusting the transmit power of a particular channel comprises:

10 comparing the channel-specific figure of merit for the particular channel to the site-specific figure of merit for the particular channel's drop site; and

if the channel-specific figure of merit for the particular channel is less than the site-specific figure of merit for the particular channel's drop site, increasing the transmit power of the particular channel;

15 if the channel-specific figure of merit for the particular channel is greater than the site-specific figure of merit for the particular channel's drop site, decreasing the transmit power of the particular channel.

20 7.(original) A method as claimed in claim 2, wherein increasing or decreasing the transmit power of a channel is performed at that channel's add site.

8.(currently amended) A method as claimed in claim 2, wherein the figure of merit at least one of the site-specific figure of merit and the channel-specific figure of merit is the "Q".

25 9.(currently amended) A method as claimed in claim 2, wherein the figure of merit at least one of the site-specific figure of merit and the channel-specific figure of merit is the bit error ratio (BER).

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10.(original) A method as claimed in claim 1, wherein each channel from among the set of channels either dropped at or travelling through any one site occupies a distinct wavelength of light, wherein determining a site-specific figure of merit for a particular site that is a drop site for at least one channel comprises determining a wavelength-specific figure of merit for each channel dropped at or travelling through the particular site and evaluating a function of each such wavelength-specific figure of merit.

11.(original) A method as claimed in claim 10, wherein said function is an averaging function.

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12.(original) A method as claimed in claim 10, wherein said function is the arithmetic mean.

13.(original) A method as claimed in claim 10, further comprising:

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determining, for each site that is a drop site for at least one channel, the maximum and minimum wavelength-specific figures of merit;

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wherein determining a site-specific figure of merit for each site that is a drop site for at least one channel is performed only if the difference between the maximum and minimum wavelength-specific figures of merit for at least one site that is a drop site for at least one channel is greater than a threshold.

14.(original) A method as claimed in claim 10, wherein adjusting the transmit power of a particular channel comprises:

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comparing the channel-specific figure of merit for the particular channel to the site-specific figure of merit for the particular channel's drop site; and

if the channel-specific figure of merit for the particular channel is less than the site-specific figure of merit for the particular channel's drop site, increasing the power of the particular channel;

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if the channel-specific figure of merit for the particular channel is greater than the site-specific figure of merit for the particular channel's drop site, decreasing the power of the particular channel.

- 5 15.(original) A method as claimed in claim 14, wherein increasing or decreasing the transmit power of a channel is performed at that channel's add site.

16.(original) A method as claimed in claim 10, wherein the figure of merit is the optical signal-to-noise ratio.

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17.(original) A method as claimed in claim 1, wherein each channel from among the set of channels either dropped at or travelling through any one site occupies a distinct wavelength of light, wherein determining a channel-specific figure of merit for a particular channel comprises determining a figure of merit for the particular channel at the

15 particular channel's drop site.

18.(original) A method as claimed in claim 17, wherein determining a site-specific figure of merit for a particular site that is a drop site for at least one channel comprises determining a wavelength-specific figure of merit for each channel dropped at the

20 particular site and evaluating a function of each such wavelength-specific figure of merit.

19.(original) A method as claimed in claim 18, further comprising:

determining, for each site that is a drop site for at least one channel, the maximum and minimum wavelength-specific figures of merit;

25 wherein determining a site-specific figure of merit for each site that is a drop site for at least one channel is performed only if the difference between the maximum and minimum wavelength-specific figures of merit for at least one site that is a drop site for at least one channel is greater than a threshold.

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20.(original) A method as claimed in claim 18, wherein adjusting the transmit power of a particular channel comprises:

comparing the channel-specific figure of merit for the particular channel to the site-specific figure of merit for the particular channel's drop site; and

5 if the channel-specific figure of merit for the particular channel is less than the site-specific figure of merit for the particular channel's drop site, increasing the transmit power of the particular channel;

if the channel-specific figure of merit for the particular channel is greater than the site-specific figure of merit for the particular channel's drop site, decreasing the transmit
10 power of the particular channel.

Amend
21.(original) A method as claimed in claim 18, wherein increasing or decreasing the transmit power of a channel is performed at that channel's add site.

15 22.(original) A method as claimed in claim 17, wherein determining a site-specific figure of merit for a particular site that is a drop site for at least one channel comprises determining a wavelength-specific figure of merit for each channel dropped at or travelling through the particular site and evaluating a function of each such wavelength-specific figure of merit.

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23.(original) A method as claimed in claim 22, further comprising:

determining, for each site that is a drop site for at least one channel, the maximum and minimum wavelength-specific figures of merit;

25 wherein determining a site-specific figure of merit for each site that is a drop site for at least one channel is performed only if the difference between the maximum and minimum wavelength-specific figures of merit for at least one site that is a drop site for at least one channel is greater than a threshold.

30 24.(original) A method as claimed in claim 22, wherein adjusting the transmit power of a particular channel comprises:

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comparing the channel-specific figure of merit for the particular channel to the site-specific figure of merit for the particular channel's drop site; and

if the channel-specific figure of merit for the particular channel is less than the site-specific figure of merit for the particular channel's drop site, increasing the transmit power of the particular channel;

if the channel-specific figure of merit for the particular channel is greater than the site-specific figure of merit for the particular channel's drop site, decreasing the transmit power of the particular channel.

25.(original) A method as claimed in claim 22, wherein increasing or decreasing the transmit power of a particular channel is performed at the particular channel's add site.

26.(original) A method of generating power adjustments used to control the transmit power of a plurality of channels, wherein each channel travels from a corresponding "add" site to a corresponding "drop" site in a WDM optical network, wherein each channel from among the set of channels either dropped at or travelling through a site occupies a distinct wavelength of light, the method comprising:

receiving a wavelength-specific figure of merit for each wavelength at each site;
determining a channel-specific figure of merit for each channel from the wavelength-specific figures of merit for those wavelength/site combinations corresponding to that channel;

determining a site-specific figure of merit for each site that is a drop site for at least one channel from the wavelength-specific figures of merit associated with that channel's path; and

generating the power adjustment for each channel as a function of the channel-specific figure of merit for that channel and as a function of the site-specific figure of merit for that channel's drop site.

27.(original) A method as claimed in claim 26, wherein determining a channel-specific figure of merit for each channel from the wavelength-specific figures of merit for those

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wavelength/site combinations corresponding to that channel comprises selecting the wavelength-specific figure of merit for the one wavelength carrying that channel at that channel's drop site.

- 5 28.(original) A method as claimed in claim 26, wherein determining a site-specific figure of merit for a particular site that is a drop site for at least one channel from the wavelength-specific figures of merit associated with that channel's path comprises evaluating a function of the wavelength-specific figures of merit for each channel dropped at the particular site.

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29.(original) A method as claimed in claim 26, wherein determining a site-specific figure of merit for a particular site that is a drop site for at least one channel from the wavelength-specific figures of merit associated with that channel's path comprises evaluating a function of the wavelength-specific figures of merit for each channel dropped at or travelling through the particular site.

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30.(original) A method as claimed in claim 26, further comprising:
determining, for each site that is a drop site for at least one channel, the maximum and minimum wavelength-specific figures of merit;

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wherein determining a site-specific figure of merit for each site that is a drop site for at least one channel is performed only if the difference between the maximum and minimum wavelength-specific figures of merit for at least one site that is a drop site for at least one channel is greater than a threshold.

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31.(original) A method as claimed in claim 26, further comprising:
for each channel, supplying that channel's power adjustment to a variable optical intensity controller at that channel's add site.

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32.(original) A method as claimed in claim 26, wherein determining the power adjustment for each channel comprises setting the power adjustment for each channel to

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the difference between the channel-specific figure of merit for that channel and the site-specific figure of merit for that channel's drop site.

33.(original) A method as claimed in claim 26, wherein determining the power adjustment for each channel comprises setting the power adjustment for each channel to the lesser of a maximum increment and the difference between the channel-specific figure of merit for that channel and the site-specific figure of merit for that channel's drop site.

34.(original) A method as claimed in claim 26, wherein determining the power adjustment for each channel comprises setting the power adjustment for each channel to a quantized approximation to the difference between the channel-specific figure of merit for that channel and the site-specific figure of merit for that channel's drop site.

35.(original) A method as claimed in claim 26, wherein determining the power adjustment for each channel comprises setting the power adjustment for each channel to a fixed increment times the sign of the difference between the channel-specific figure of merit for that channel and the site-specific figure of merit for that channel's drop site.

36.(original) An equalizer for generating power adjustments used to control the transmit power of a plurality of channels, wherein each channel travels from a corresponding "add" site to a corresponding "drop" site in a WDM optical network, wherein each channel from among the set of channels either dropped at or travelling through a site occupies a distinct wavelength of light, comprising:

means for receiving a wavelength-specific figure of merit for each wavelength at each site;

means for determining a channel-specific figure of merit for each channel from the wavelength-specific figures of merit for those wavelength/site combinations corresponding to that channel;

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means for determining a site-specific figure of merit for each site that is a drop site for at least one channel from the wavelength-specific figures of merit associated with that channel's path; and

5 means for generating the power adjustment for each channel as a function of the channel-specific figure of merit for that channel and as a function of the site-specific figure of merit for that channel's drop site.

37.(original) Computer-readable media tangibly embodying a program of instructions executable by a computer to perform a method of generating power adjustments used to
10 control the transmit power of a plurality of channels, wherein each channel travels from a corresponding "add" site to a corresponding "drop" site in a WDM optical network, wherein each channel from among the set of channels either dropped at or travelling through a site occupies a distinct wavelength of light, the method comprising:

receiving a wavelength-specific figure of merit for each wavelength at each site;

15 determining a channel-specific figure of merit for each channel from the wavelength-specific figures of merit for those wavelength/site combinations corresponding to that channel;

determining a site-specific figure of merit for each site that is a drop site for at least one channel from the wavelength-specific figures of merit associated with that
20 channel's path; and

generating the power adjustment for each channel as a function of the channel-specific figure of merit for that channel and as a function of the site-specific figure of merit for that channel's drop site.

25 38.(original) At least one computer programmed to execute a process for generating power adjustments used to control the transmit power of a plurality of channels, wherein each channel travels from a corresponding "add" site to a corresponding "drop" site in a WDM optical network, wherein each channel from among the set of channels either dropped at or travelling through a site occupies a distinct wavelength of light, the process
30 comprising:

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- receiving a wavelength-specific figure of merit for each wavelength at each site;
determining a channel-specific figure of merit for each channel from the wavelength-specific figures of merit for those wavelength/site combinations corresponding to that channel;
- 5 determining a site-specific figure of merit for each site that is a drop site for at least one channel from the wavelength-specific figures of merit associated with that channel's path; and
- generating the power adjustment for each channel as a function of the channel-specific figure of merit for that channel and as a function of the site-specific figure of
- 10 merit for that channel's drop site.

- 39.(original) A method of generating power adjustments used to control the transmit power of a plurality of channels, wherein each channel travels from a corresponding "add" site to a corresponding "drop" site in a WDM optical network, wherein each
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copy 15 channel from among the set of channels either dropped at or travelling through a site occupies a distinct wavelength of light, the method comprising:

- for each site which is a drop site for at least one channel, receiving a channel-specific figure of merit for each channel dropped at that drop site;
- determining, for each site that is a drop site for at least one channel, a site-
- 20 specific figure of merit from the channel-specific figures of merit for all channels dropped at that drop site; and
- generating each channel's power adjustment as a function of the channel-specific figure of merit for that channel and as a function of the site-specific figure of merit for that channel's drop site.

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- 40.(original) An optical system, comprising:
- a main optical path comprising a plurality of sites for carrying a plurality of channels therealong, each channel travelling from a corresponding one of the sites,
- 30 known as an "add" site for that channel, to a corresponding other one of the sites, known

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- as a "drop" site for that channel, wherein each site which is a drop site for at least one channel has a capability to determine a wavelength-specific figure of merit for each channel either dropped at or passing through that site, wherein each site which is an add site for at least one channel has a capability to control the transmit power of each
- 5 channel for which it is an add site; and

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- an equalizer connected to each site which is an add site for at least one channel and to each site which is a drop site for at least one channel, said equalizer being adapted to receive a wavelength-specific figure of merit for each wavelength at each site;
- 10 determine a channel-specific figure of merit for each channel from the wavelength-specific figures of merit for those wavelength/site combinations corresponding to that channel; determine a site-specific figure of merit for each site that is a drop site for at least one channel from the wavelength-specific figures of merit associated with that channel's path; and generate the power adjustment for each channel as a function of the
- 15 channel-specific figure of merit for that channel and as a function of the site-specific figure of merit for that channel's drop site.